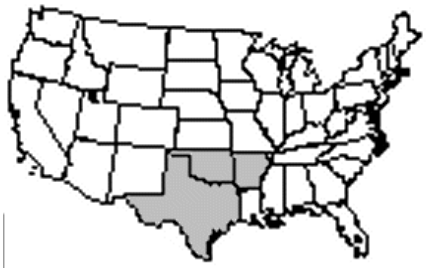
U.S. Fish and Wildlife Service

Endangered Species Facts



Ouachita Rock Pocketbook Mussel

What is an Ouachita Rock Pocketbook?

The Ouachita rock pocketbook -- a freshwater mussel -- has been listed by the U.S. Fish and Wildlife Service as an endangered species. Endangered species are animals and plants that are in danger of becoming extinct. Threatened species are animals and plants that are likely to become endangered in the foreseeable future. Identifying, protecting, and restoring endangered and threatened species is the primary objective of the Service's endangered species program. Its scientific name is *Arkansia wheeleri.*

Appearance - The Ouachita rock pocketbook is a medium-sized freshwater mussel with a relatively thick, moderately inflated shell. The outer surface is chestnut-brown to black with a silky luster. Its shell reaches a maximum size of about 4½ inches long, 3½ inches high, and 2½ inches wide. It is distinguished from other similar appearing species by distinctive details of its shell.

The Ouachita rock pocketbook remains in scattered populations within the Red River and Ouachita River systems in Arkansas, Oklahoma, and Texas.

Where Does the Rock Pocketbook Live?

Range/Distribution - The historical distribution of the Ouachita rock pocketbook included the Kiamichi River in southeastern Oklahoma, the Little River in southwestern Arkansas, and the Ouachita River in southcentral Arkansas. Currently, it is known to exist in approximately 157 miles of the Red River system (including the Kiamichi and Little Rivers) and 111 miles of the Ouachita River system. The only known substantial population -- fewer than 1,800 individuals -- inhabits an 88-mile section of the Kiamichi River in Oklahoma. A smaller population -- fewer than 100 individuals -- inhabits approximately 69 miles of the Little River in Oklahoma and Arkansas. Recent observations of the species in the Ouachita River in Arkansas are rare and widely separated. Other recent evidence of the species consists of single shells recovered from Pine and Sanders creeks in Texas.

Habitat - The Ouachita rock pocketbook inhabits pools, backwaters, and side channels of rivers and large creeks in or near the southern slope of the Ouachita Uplift. The species occupies stable substrates containing gravel, sand, and other materials. The Ouachita rock pocketbook always occurs within large mussel beds containing a diversity of mussel species.

Reproduction - Details of the reproductive biology of the Ouachita rock pocketbook are unknown, but are likely similar to those seen in related mussel species. Eggs are held in the gills of females and develop, if fertilized, into microscopic larvae (glochidia). In the Ouachita rock pocketbook, eggs likely develop during the fall and the glochidia are likely released during spring. For nearly all freshwater mussels, glochidia must attach to a fish to continue development. Glochidia develop only on certain fish species, known as 'host' fish, particular to each mussel species. In general, glochidia transform on the fish into juveniles, leaving their host in the process and falling to the river bottom where they mature into adults. Adults feed by filtering out plankton and small particles from the water. Mussels typically require 6 - 12 years to reach maturity. A lack of specific knowledge about reproduction in the Ouachita rock pocketbook, including which fish species constitute suitable hosts, adds to the difficulty of recovering this mussel.

Why is the Ouachita Rock Pocketbook Endangered?

Pollution - Because they are sedentary filter feeders, mussels are easily harmed by water pollution. Pollution can originate from discrete, readily identified sources such as factories and sewage treatment plants (commonly referred to as point sources), or from diffuse sources (commonly referred to as nonpoint sources) such as cultivated fields, pastures, construction sites, and roads. Pollution harms mussels and host fish by exposing them to toxicants, decreasing oxygen concentrations, and otherwise changing the natural condition of these organisms' habitats.

Sedimentation - Sediment is particulate material contributed to waterbodies from their substrates or surrounding watersheds. Sediments enter and move within streams through erosional processes. Sedimentation refers to the settling and deposition of sediments (especially smaller-sized particles) in waterbodies. Although sedimentation is a natural process, agricultural practices, dredging, construction and operation of impoundments, road construction, heavy recreational use, and other activities tend to cause high levels of erosion and increased sedimentation. Because freshwater mussels have limited mobility, a sudden or slow blanketing of a stream bottom with sediment impairs the steady circulation of water across their gills and can lead to suffocation. Increased sediment levels also make it difficult for mussels to feed, which can lead to decreased growth, reproduction, and survival.

Dams - The construction and operation of impoundments behind dams have significantly reduced the range of the Ouachita rock pocketbook. Impoundments affect both upstream and downstream mussel populations by changing the nature and dynamics of river habitats and by creating barriers between populations. Waters impounded behind dams become still, deep, and chemically different from waters in unimpounded streams. Waters released from dams are often chemically altered, often cooler than downstream waters, and may scour the river bottom for considerable distances downstream. In other cases, irregular releases may strand mussels above the waterline of tailwater base flows. Mussel and fish populations isolated by dams are more likely to die out due to limited range, local conditions, and lack of immigration.

Exotic Species - The recent invasion of the exotic zebra mussel into the U.S. poses a potential threat to the Ouachita rock pocketbook, because it can starve and suffocate native mussels by attaching to their shells in large numbers. Information on zebra mussels and other exotic species that are impacting native fish and wildlife species is available at http://invasives.fws.gov.

Listing Status - The Ouachita rock pocketbook was added to the Fish and Wildlife Service's list of Threatened and Endangered Species in 1991. The mussel's federal classification is Endangered. Critical habitat has not been designated. The Service has developed a recovery plan that outlines steps necessary to upgrade this mussel species to threatened status and eventually to remove it entirely from endangered species protection.

What is Being Done to Prevent the Ouachita Rock Pocketbook's Extinction?

Recovery - The Service has released a final recovery plan that identifies specific management actions that would minimize or remove threats and contribute to restoring self-sustaining, viable Ouachita rock pocketbook populations. The pocketbook may be upgraded to threatened by protecting the Kiamichi River population, and by reestablishing and protecting distinct viable populations in two streams outside of the Kiamichi River system. Protection involves elimination of present and foreseeable threats, determining biological requirements, maintenance of suitable habitats for pocketbooks and their fish host(s), and verification of conditions through monitoring. The interim criterion for delisting requires establishment and protection of distinct viable populations in all four areas historically inhabited. The Ouachita rock pocketbook has a Service recovery priority of 4C.

Learn - Learn more about the Ouachita rock pocketbook and other mussel species and the ecological role they play in aquatic biodiversity. Information about freshwater mussels and their ecology can be found through numerous internet websites, such as http://www.biosis.org/zrdocs/zoolinfo/moll_gen.htm, http://courses.smsu.edu/mcb095f/gallery, and http://www.inhs.uiuc.edu/cbd/collections/mollusk.html.

For additional information on endangered and threatened species, visit the Service's endangered species website at http://endangered.fws.gov.

Join - Get involved in habitat conservation and education in your community. Many outstanding volunteer-based organizations encourage participation. If you live near a national wildlife refuge, national fish hatchery or ecological services field office, stop in and let us sign you up as an *official* Fish and Wildlife Service Volunteer -- we can use your assistance!

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